Appl. No. 10/599,557
Response to Office Action of September 3, 2009

PATENT
Docket No.: NL040657US1
Customer No. 000024737

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A multi-channel encoder operable to process input signals conveyed in a plurality of input channels to generate corresponding output data comprising down-mix output signals together with complementary parametric data, the encoder including:

(a)   a down-mixer for down-mixing the input signals to generate the corresponding down-mix output signals; and

(b)   an analyzer for processing the input signals, said analyzer being operable to generate said parametric data complementary to the down-mix output signals, said encoder being operable when generating the down-mix output signals for also generating said parametric data configured (i) to allow for subsequent decoding of the down-mix output signals (ii) for predicting (iii)(1) signals of channels processed and (iii)(2) then discarded within the encoder, thereby enabling a subsequent decoding via a decoder to substantially regenerate with enhanced accuracy the corresponding discarded channels by predicting information of the discarded channels from the down-mix output signals and the parametric data.

2. (Previously Presented) The multi-channel encoder according to Claim 1, said encoder being operable to process the input signals on the basis of time/frequency tiles.

3. (Previously Presented) The multi-channel encoder according to Claim 2, wherein the tiles are defined either before or in the encoder during processing of the input signals.

4. (Previously Presented) The multi-channel encoder according to Claim 1, wherein the analyzer is operable to generate at least part of the parametric data ($C_{1,i}; C_{2,i}$) by

Appl. No. 10/599,557
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Docket No.: NL040657US1
Customer No. 000024737

applying an optimization of at least one signal derived from a difference between one or more input signals and an estimation of said one or more input signals which can be generated from output data from the multi-channel encoder.

5. (Previously Presented) The multi-channel encoder according to Claim 4, wherein the optimization involves minimizing an Euclidean norm.

6. (Previously Presented) The multi-channel encoder according to Claim 1, wherein there are N input channels which the analyzer is operable to process corresponding original input signals of the N input channels to generate for each time/frequency tile the parametric data, the analyzer being operable to output M(N-M) parameters together with M down-mix output signals for representing the input signals in the output data; M and N being integers and M<N.

7. (Currently Amended) The multi-channel encoder according to Claim 6, wherein the integer M is equal to two such that the output signals are susceptible to being replayed in a two-channel stereophonic apparatus and being coded by a standard stereo coder.

8. (Previously Presented) A signal processor for inclusion in a multi-channel encoder according to Claim 1, the processor being operable to process data in the multi-channel encoder for generating its down-mix output signals and parametric data.

9. (Previously Presented) A method of encoding input signals in a multi-channel encoder to generate corresponding output data comprising down-mix output signals together with complementary parametric data, the method including steps of:

(a)   providing the input signals to the encoder via a plurality of (N) input channels;

(b)   down-mixing the input signals to generate the corresponding (M) down-mix output signals; and

Appl. No. 10/599,557
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(c)　processing the input signals to generate said parametric data complementary to the down-mix output signals, wherein processing of the input signals in the multi-channel encoder involves determining the parameter data for enabling representations of the input signals to be subsequently regenerated, said down-mix output signals and parametric data (i) allowing for decoding ~~thereof~~ of the down-mix output signals (ii) for predicting (iii)(1) content of signals of channels processed in the encoder and (iii)(2) then discarded within the encoder, thereby enabling a subsequent decoding via a decoder to substantially regenerate with enhanced accuracy the corresponding discarded channels by predicting information of the discarded channels from the down-mix output signals and the parametric data.

10. (Previously Presented) Encoded output data generated according to the method of Claim 9, said output data stored on a data carrier.

11. (Previously Presented) A multi-channel decoder for decoding output data generated by an multi-channel encoder according to Claim 1, the decoder comprising:

(a)　processing means for receiving down-mix output signals together with parametric data from the encoder, the processing means being operable to process the parametric data to determine one or more coefficients or parameters; and

(b)　computing means for calculating an approximate representation of each input signal encoded into the output data using the parameter data and also the one or more coefficients determined in step (a) for further processing to substantially regenerate representations of input signals giving rise to the output data generated by the encoder.

12. (Previously Presented) A signal processor for use in a multi-channel decoder according to Claim 11, said signal processor being operable to assist in processing data in association with regenerating representations of input signals.

Appl. No. 10/599,557
Response to Office Action of September 3, 2009

PATENT
Docket No.: NL040657US1
Customer No. 000024737

13. (Previously Presented) A method of decoding encoded data in a multi-channel decoder, said data being of a form as generated by a multi-channel encoder according to Claim 1, the method including steps of:

(a)   processing down-mix output signals together with parametric data present in the encoded data, said processing utilizing the parametric data to predict one or more coefficients or parameters; and

(b)   calculating an approximate representation of each input signal encoded into the encoded data using the parameter data and also the one or more coefficients determined in step (a) for further processing to substantially regenerate representations of input signals giving rise to the encoded data generated by the encoder.